APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/894,497	06/28/2001	Darren Schmidt	5150-52200	7448

7590   12/22/2003

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EXAMINER
WACHSMAN, HAL D

ART UNIT	PAPER NUMBER
2857	

DATE MAILED: 12/22/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

	Application No.	**Applicant(s)**
Office Action Summary	09/894,497	SCHMIDT ET AL.
	Examiner	**Art Unit**
	Hal D Wachsman	2857

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE <u>3</u> MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on <u>02 October 2003</u>.

2a)☐ This action is **FINAL**.   2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) <u>1,4-20,42-47 and 64-83</u> is/are pending in the application.

    4a) Of the above claim(s) <u>83</u> is/are withdrawn from consideration.

5)☒ Claim(s) <u>74,75 and 79</u> is/are allowed.

6)☒ Claim(s) <u>1,4-13,15-17,42-46,53,55-57,64-72,76-78 and 80-82</u> is/are rejected.

7)☒ Claim(s) <u>14,18,19,47,58 and 73</u> is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☒ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on <u>11 August 2003</u> is/are: a)☒ accepted or b)☐ objected to by the Examiner.

    Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

    Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☒ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. §§ 119 and 120

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

    a)☐ All b)☐ Some * c)☐ None of:

      1.☐ Certified copies of the priority documents have been received.

      2.☐ Certified copies of the priority documents have been received in Application No. _____.

      3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

    * See the attached detailed Office action for a list of the certified copies not received.

13)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application) since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

    a) ☐ The translation of the foreign language provisional application has been received.

14)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121 since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

Attachment(s)

1)☐ Notice of References Cited (PTO-892)

2)☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)

3)☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____.

4)☐ Interview Summary (PTO-413) Paper No(s). _____.

5)☐ Notice of Informal Patent Application (PTO-152)

6)☐ Other: .

1.   Newly submitted claim 83 is directed to an invention that is independent or

distinct from the invention originally claimed for the following reasons: The applicant in

the response to the restriction requirement filed 2-7-03 elected species I which

comprised claims 1-20, 42-47 and 53-58 for which the applicant has already received

an action on the merits. Newly submitted claim 83 is not in species I as this claim is

mutually exclusive (see MPEP 806.04(f)) with respect to species I. For example, newly

submitted claim 83 cites "c) if said first test results meet first criteria, testing the curve

against a second subset of the plurality of data points, thereby generating second test

results and d) if said second test results meet second criteria, outputting information

regarding the curve". If we turn to claim 1 of species I for example, none of these steps

are in claim 1. Claim 1 cites "d) performing (b) and (c) a plurality of times to determine a

curve which meets first criteria, wherein said performing (b) and (c) a plurality of times

comprises performing (b) and (c) in an iterative manner until ending criteria are met"

which is clearly not found in claim 83, thus there is mutual exclusivity and claim 83 is not

in elected species I.

Since applicant has received an action on the merits for the originally presented

invention, this invention has been constructively elected by original presentation for

prosecution on the merits. Accordingly, claim 83 stands withdrawn from consideration

as being directed to a non-elected invention. See 37 CFR 1.142(b) and MPEP §

821.03.

2.   The terminal disclaimer filed on 8-11-03 disclaiming the terminal portion of any

patent granted on this application which would extend beyond the expiration date of any

patent granted on Application Number 09/894,272 has been reviewed and is accepted. The terminal disclaimer has been recorded.

3.   As indicated in paragraph 4 of the previous Office Action, the declaration is objected to because there is a cross-out of the citizenship for inventor Ram Rajagopal which has not been initialed and dated. Appropriate correction is required.

4.   The replacement figures 1 and 2 filed 8-11-03, as well as the other drawings originally filed have been approved.

5.   The amendment to page 1, line 25, in the reply filed 10-2-03 refers to Figures 10A-C which should be indicated as Figures 10A-10C.

6.   The Examiner respectfully notes that a period is missing at the end of claim 43 and in claim 19, line 6 and claim 75, line 6, it appears that the word "the" is missing before "curve".

7.   Claims 1, 4-20, 42-47, 53, 55-58 are objected to under 37 C.F.R. 1.75(a) as these claims do not particularly point out and distinctly claim the subject matter which the applicant regards as the invention. Claim 1, step e, cites "meet first criteria" which it appears should be "meet said first criteria". This same type of problem also occurs in claim 42, step d, claim 53, part d and claim 82, step e. Claim 19, lines 5-6, cite "a culled subset" however is this the same culled subset already cited in claim 18 ? Claim 57, line 11, cites "a first subset" however is this the first subset already cited in claim 53 ? The examiner asks the applicant to better claim the limitations cited above. While the examiner understands the intentions of the applicant he feels confusion could be drawn from the limitations cited above. Appropriate correction is required.

Claim Rejections - 35 USC § 112

8.   The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly
> claiming the subject matter which the applicant regards as his invention.

9.   Claims 5-12, 44-46, 55-57, 64-71, 76-78 and 82 are rejected under 35

U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and

distinctly claim the subject matter which applicant regards as the invention.

Claim 5 cites "pre-testing the curve against a second subset of the plurality of

data points, wherein said pre-testing produces second test results; if said second test

results meet second criteria, then performing c) – e)". However, step c in claim 1 cites

"testing the curve against a first subset of the plurality of data points, wherein said

testing produces first test results" and claim 1, step d, cites "performing (b) and (c) a

plurality of times to determine a curve which meets first criteria....". There is thus

confusion here, because as the steps are ordered, there is a second subset, second

test results and a second criteria referred to <u>before</u> there is a first subset, first test

results and a first criteria that is for example we have test results being labeled as

"second test results" when in fact these "second test results" occur before what is called

the "first test results" but have not been referred to as the "first test results". This same

type of problem also occurs in claims 44, 55, 64, 76 and 82.

Claim Rejections - 35 USC § 102

10.   The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that

form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

11.   Claims 1, 4, 13, 15-17, 42, 43, 53, 72, 80 and 81 are rejected under 35

U.S.C. 102(b) as being anticipated by Roth (5,617,491).

As per claim 1, Roth (see at least abstract) discloses "receiving a plurality

of data points". Roth (Abstract, figures 2a, 2b, 3a, 3b) discloses "generating a curve

based on two or more random points of the plurality of data points". Roth (Abstract, col.

2 lines 48-54, col. 5 lines 45-48, 63-67, col. 6 lines 1, 2, 40-66) discloses "testing the

curve against a first subset...testing produces first test results". Roth (Abstract, figures

2a, 2b, 3a, 3b, col. 2 lines 48-57, col. 5 lines 45-48, 63-67, col. 6 lines 1, 2, 40-66, col. 9

lines 54-65) discloses "performing (b) and (c) a plurality of times to determine a curve

which meets first criteria...in an iterative manner until ending criteria are met". Roth

(Abstract, col. 9 lines 63-67) discloses "if said first test results meet first criteria,

outputting information regarding the curve".

As per claim 4, the ending criteria has already been addressed above and

Roth (col. 2 lines 55-57, col. 9 lines 63-65) discloses "the number of iterations meeting

or exceeding an iteration threshold". Roth (col. 2 lines 44, 45, 52-54) discloses "a

number of data points of the plurality of data points within a specified radius of the curve meeting or exceeding a specified minimum value".

As per claim 13, Roth (col. 2 lines 52-57) discloses "determining a number of the subset ....within a specified radius of the curve; wherein said first test results comprise said number of the first subset of the plurality of data points which are within the specified radius of the curve".

As per claim 15, Roth (see at least abstract) discloses the feature of this claim.

As per claim 16, Roth (Abstract, figures 2a, 2b, 3a, 3b, 4d) discloses the feature of this claim.

As per claim 17, Roth (figure 4b) discloses the curve comprising a line.

As per claim 42, Roth (Abstract, figures 2a, 2b, 3a, 3b) discloses "generating a curve based on two or more random points of the plurality of data points". Roth (Abstract, col. 2 lines 48-54, col. 5 lines 45-48, 63-67, col. 6 lines 1, 2, 40-66) discloses "testing the curve against a first subset...testing produces first test results". Roth (Abstract, figures 2a, 2b, 3a, 3b, col. 2 lines 48-57, col. 5 lines 45-48, 63-67, col. 6 lines 1, 2, 40-66, col. 9 lines 54-65) discloses "performing (a) and (b) a plurality of times to determine a curve which meets first criteria...in an iterative manner until ending criteria are met". Roth (Abstract, col. 9 lines 63-67) discloses "if said first test results meet first criteria, outputting information regarding the curve".

As per claim 43, the ending criteria has already been addressed above and Roth (col. 2 lines 55-57, col. 9 lines 63-65) discloses "the number of iterations

meeting or exceeding an iteration threshold". Roth (col. 2 lines 44, 45, 52-54) discloses

"a number of data points of the plurality of data points within a specified radius of the

curve meeting or exceeding a specified minimum value".

As per claim 53, Roth (Abstract, figures 2a, 2b, 3a, 3b) discloses

"generate a curve based on two or more random points of the plurality of data points".

Roth (Abstract, col. 2 lines 48-54, col. 5 lines 45-48, 63-67, col. 6 lines 1, 2, 40-66)

discloses "test the curve against a first subset... to produce first test results". Roth

(Abstract, figures 2a, 2b, 3a, 3b, col. 2 lines 48-57, col. 5 lines 45-48, 63-67, col. 6 lines

1, 2, 40-66, col. 9 lines 54-65) discloses "perform (a) and (b) a plurality of times to

determine a curve which meets first criteria... in an iterative manner until ending criteria

are met". Roth (col. 2 lines 55-57, col. 9 lines 63-65) discloses "the number of iterations

meeting or exceeding an iteration threshold". Roth (col. 2 lines 44, 45, 52-54) discloses

"a number of data points of the plurality of data points within a specified radius of the

curve meeting or exceeding a specified minimum value". Roth (Abstract, col. 9 lines 63-

67) discloses "if said first test results meet first criteria, outputting information regarding

the curve". Roth (Abstract, col. 9 lines 10-16) discloses a computer system which

contains a CPU and a memory medium which can store program instructions. Roth (see

at least abstract) discloses the input which is operable to receive a plurality of data

points.

As per claim 72, Roth (see at least abstract) discloses "receiving a

plurality of data points". Roth (Abstract, figures 2a, 2b, 3a, 3b) discloses "generating a

curve based on two or more random points of the plurality of data points". Roth

(Abstract, col. 2 lines 48-54, col. 5 lines 45-48, 63-67, col. 6 lines 1, 2, 40-66) discloses "testing the curve against a first subset ....testing produces first test results, wherein said testing the curve ...comprises:". Roth (col. 2 lines 44, 45, 52-54) discloses "determining a number of the first subset of the plurality of data points which are within a specified radius of the curve..said first test results comprise said number of the first subset of the plurality of data points which are within the specified radius of the curve". Roth (col. 9 lines 60-67) discloses "if said first test results meet first criteria, outputting information regarding the curve".

As per claim 80, Roth (Abstract, figures 2a, 2b, 3a, 3b) discloses "generating a curve based on two or more random points of the plurality of data points". Roth (Abstract, col. 2 lines 48-54, col. 5 lines 45-48, 63-67, col. 6 lines 1, 2, 40-66) discloses "testing the curve against a first subset ....testing produces first test results". Roth (Abstract, figures 2a, 2b, 3a, 3b, col. 2 lines 48-57, col. 5 lines 45-48, 63-67, col. 6 lines 1, 2, 40-66, col. 9 lines 54-65) discloses "performing (a) and (b) a plurality of times to determine a curve which meets first criteria... in an iterative manner until ending criteria are met, and wherein said ending criteria ...one or more of". Roth (col. 2 lines 55-57, col. 9 lines 63-65) discloses "the number of iterations meeting or exceeding an iteration threshold". Roth (col. 2 lines 44, 45, 52-54) discloses "a number of data points of the plurality of data points within a specified radius of the curve meeting or exceeding a specified minimum value". Roth (Abstract, col. 9 lines 63-67) discloses "if said first test results meet first criteria, outputting information regarding the curve".

As per claim 81, Roth (see at least abstract) discloses "receiving a plurality of data points". Roth (Abstract, figures 2a, 2b, 3a, 3b) discloses "generating a curve based on two or more random points of the plurality of data points". Roth (Abstract, col. 2 lines 48-54, col. 5 lines 45-48, 63-67, col. 6 lines 1, 2, 40-66) discloses "testing the curve against a first subset ....testing produces first test results". Roth (Abstract, figures 2a, 2b, 3a, 3b, col. 2 lines 48-57, col. 5 lines 45-48, 63-67, col. 6 lines 1, 2, 40-66, col. 9 lines 54-65) discloses "performing (b) and (c) a plurality of times to determine a curve which meets first criteria...in an iterative manner until ending criteria are met, and wherein said ending criteria ...one or more of". Roth (col. 2 lines 55-57, col. 9 lines 63-65) discloses "the number of iterations meeting or exceeding an iteration threshold". Roth (col. 2 lines 44, 45, 52-54) discloses "a number of data points of the plurality of data points within a specified radius of the curve meeting or exceeding a specified minimum value". Roth (Abstract, col. 9 lines 63-67) discloses "if said first test results meet first criteria, outputting information regarding the curve".

Claim Rejections - 35 USC § 103

12.   The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

13.   Claim 20 is rejected under 35 U.S.C. 103(a) as being unpatentable over Roth (5,617,491) in view of Silver et al. (6,408,109).

As per claim 20, Silver et al. (see at least abstract) disclose that the plurality of data points comprises pixels of an image. Silver et al. (col. 3 lines 56-67, col. 4 lines 1, 2) disclose that the curve fitting method operates to perform edge detection on the image. It would have been obvious to a person of ordinary skill in the art at the time the invention was made to apply the techniques of Silver et al. to the invention of Roth as specified above because as taught by Roth (col. 1 lines 56-60) it was common for image processing systems relating to three dimensional images, to invoke methods that map pixels, in the form of range image data points to planar surfaces, or to second order or higher order surfaces, thereby approximating range image data points by surfaces.

14.   Claims 74, 75 and 79 are allowed.

Claims 14, 18, 19, 47, 58 and 73 are objected to as being dependent upon a
rejected base claim, but would be allowable if rewritten in independent form including all
of the limitations of the base claim and any intervening claims and subject to the
appropriate correction of the 37 C.F.R. 1.75(a) objections in paragraph 7 above.

15.   Applicant's arguments filed 10-2-03 have been fully considered but they are not
persuasive with respect to the claims that are rejected above. As a result of further
review and the Applicant's newly added claims, additional grounds of rejection with
respect to the Roth reference as well as 35 U.S.C. 112 2nd paragraph have been made.
The Applicant argues on page 25 of the reply filed 10-2-03 that "In none of the cited
material does Roth describe or suggest conditional output of information regarding the
curve". However, as clearly shown in claim 1 of the instant application for example, this
conditional output is based upon an ending criteria being met. Likewise, Roth also has
an ending criteria as shown in col. 9 lines 63-67, where it states:

"g) repeating steps (ii) to (iv) a predetermined number of times, and selecting the
equation of the surface with the maximum number of counted data points; After this, the
best equation within the given tolerance band is to be returned by the system"

In fact, claim 4 of the instant application, clearly states that the ending criteria can
be "the number of iterations meeting or exceeding an iteration threshold" which as
shown above is in the Roth reference the iteration threshold that is being met is the
repetition of the steps (ii) to (iv) a predetermined number of times.

16.   Any inquiry concerning this communication or earlier communications from the
examiner should be directed to Hal D Wachsman whose telephone number is 703-305-

9788. The examiner can normally be reached on Monday to Friday 7:00 A.M. to 4:30 P.M..

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Marc Hoff can be reached on 703-308-1677. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-0956.

Hal D Wachsman
Primary Examiner
Art Unit 2857

HW
December 17, 2003

09/894497

APPLICATION NO./ CONTROL NO.	FILING DATE	FIRST NAMED INVENTOR / PATENT IN REEXAMINATION	ATTORNEY DOCKET NO.

EXAMINER

ART UNIT	PAPER

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DATE MAILED:

Please find below and/or attached an Office communication concerning this application or proceeding.

Commissioner for Patents

Hal D Wachsman
Primary Examiner
Art Unit: 2857

PTO-90C (Rev.04-03)

-------------------- TERMINAL DISCLAIMER ---------------------

APPLICATION: __09|894,497__

RE: TERMINAL DISCLAIMER:

RELATED APPLICATION(S) __09|894,272__ ,

_____, _____, HAS

(HAVE) NOT ISSUED AS OF __12 - 16-2003__ .

DO NOT REMOVE NOTE UNTIL 09/894,272 HAS BEEN ISSUED A PATENT NUMBER AND DOCUMENTED IN FILE 09/894,497.